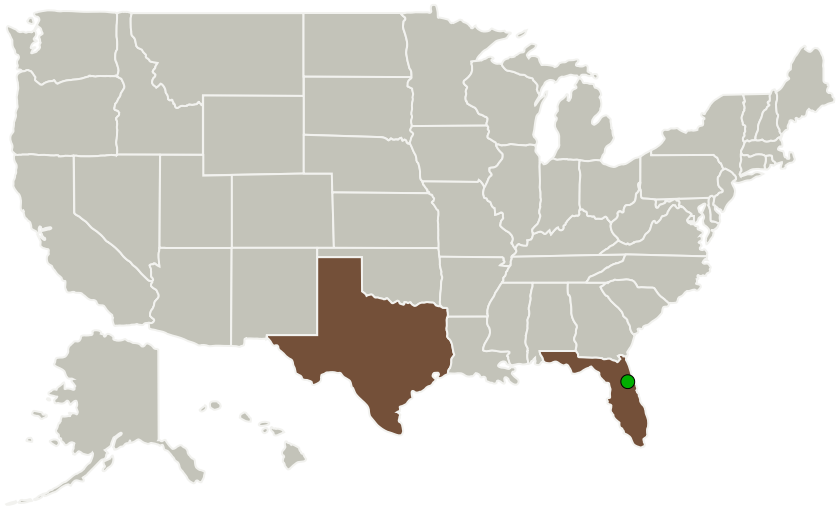
Wireless Intra-vehicle Communication System (WICS), Phase I

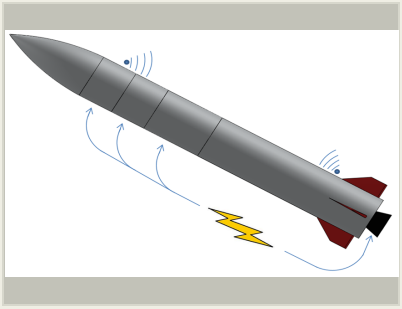
Completed Technology Project (2013 - 2013)

Project Introduction

Invocon's Wireless Intra-vehicle Communication System (WICS) is being designed as an enabling technology for low-cost launch vehicles. It will reduce the cost of these vehicles in primarily three ways: 1. Minimizing vehicle weight by decreasing bulky cables and connectors - this increases the useful payload and decreases the propulsion requirements. 2. Minimizing physical interconnects - this simplifies integration, testing, and launch control and thereby decreases the labor involved in these tasks. 3. Enabling testing at the vehicle or module level - this reduces the total amount of testing at the component level resulting in a smaller required test budget. It also reduces the mass of enclosures required in the vehicle. WICS will operate wireless networks as part of the closed-loop Thrust Vector Control (TVC) system and the vehicle's data acquisition system. The two networks share many characteristics while diverging in a few areas based on their specific constraints. The TVC network must minimize latency and maximize both throughput and reliability. The data acquisition network must include paths from many locations througout the vehicle. In order to maximize the return from Phase I, Invocon will concentrate its effort on developing proof-of-concept hardware and emphasize initial software development for the critical control application.

Primary U.S. Work Locations and Key Partners





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Organizations Performing Work	Role	Type	Location
Invocon, Inc.	Lead Organization	Industry Veteran-Owned Small Business (VOSB)	Conroe, Texas
Kennedy Space Center(KSC)	Supporting Organization	NASA Center	Kennedy Space Center, Florida

Primary U.S. Work Locations	
Florida	Texas

Project Transitions

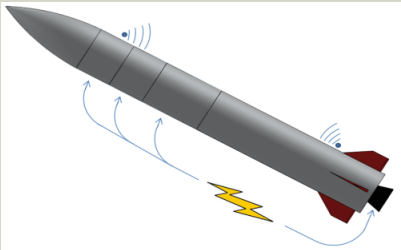
May 2013: Project Start

November 2013: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138573)*

Images



Project Image
Wireless Intra-vehicle Communication System (WICS)
(https://techport.nasa.gov/image/128923)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Invocon, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

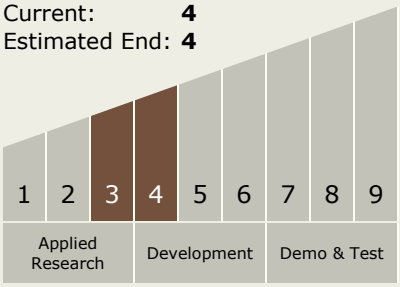
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Paul Zymowski

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
  - TX05.5 Revolutionary Communications Technologies
    - TX05.5.3 Hybrid Radio and Optical Technologies

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System